

ABSTRACT OF THE DISCLOSURE

A molten glass pump preferably includes one or more pumps which form either a single-stage apparatus or are combined in series to form a multi-stage apparatus. The exact configuration depends on the required process pressure and the required degree of
5 glass homogenization. Examples of the invention include an auger pump and a mixing auger pump which have varying degrees of mixing action, as well as a homogenizing pump which provides some pumping action but is primarily a homogenizer. All three pumps preferably include a centerline flow recirculation feature which remixes inhomogeneous glass into the incoming glass stream. A counter-rotating sleeve, which straightens the glass flow exiting the apparatus and provides an additional flow
10 recirculation path, is also preferably included.

THE GOVERNMENT OWNED MATERIALS IDENTIFIED BY THIS STATEMENT ARE NOT SUBJECT TO THE U.S. TRADE SECRECY ACT.